Health Consultation No. 1

PRECISION NATIONAL CORPORATION

CLARKS-SUMMIT, LACKAWANNA COUNTY, PENNSYLVANIA

CERCLIS NO. PAD053676631

OCTOBER 15, 1998

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Prepared by:

Pennsylvania Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY

This document responds to a request by the Environmental Protection Agency (EPA) that the Agency for Toxic Substances and Disease Registry (ATSDR) determine if residents near the site are currently being exposed to hexavalent chromium in their private well water at levels that would harm their health and identify the locations of monitoring wells necessary to define the extent of a contaminated groundwater plume that originated at the Precision National Plating Services (PNPS) site.

The Pennsylvania Department of Health (PADOH) under Cooperative Agreement with ATSDR, concludes that the site is an indeterminant health hazard for one family living near the site that continues to use potentially contaminated groundwater from their private residential well and has recommended that the water in this well be sampled for hexavalent chromium. PADOH will review the sampling results and determine the public health significance of this family's exposure to the groundwater. All other area residences are believed to be currently using municipal water.

The Pennsylvania Department of Health (PADOH) under Cooperative Agreement with ATSDR, and in conjunction and collaboration with the Pennsylvania Department of Environmental Protection (PADEP), concludes that the locations of the proposed monitoring wells presented in this document provide sampling points necessary to define the extent of the contaminated groundwater plume. In addition to the proposed monitoring wells, PADOH identified two private residential wells (one in use, one not), two public wells and three groundwater seeps that need to be sampled to either identify sources of current exposure or to determine the extent of the contaminated groundwater plume.

BACKGROUND AND STATEMENT OF ISSUES

On October 29, 1997, EPA Region III requested that ATSDR determine if residents near the PNPS site are currently exposed to hexavalent chromium in their private well water at levels that pose a public health threat and recommend residential sampling locations. EPA also requested that ATSDR recommend locations for the placement of monitoring wells necessary to determine the extent of a groundwater plume containing hexavalent chromium that is believed to have originated at the PNPS site.

PNPS owns and operates a chromium plating facility at 198 Ackerly Road, approximately 0.75 miles north of Clarks Summit, Pennsylvania (Figures 1-4). The 46-acre property is located in a rural area and has operated as a plating facility since 1956. The previous owner operated the facility from its inception in 1956 until 1971 for plating and machining locomotive crankshafts. PNPS acquired ownership of the site in 1971. PNPS limited operations at the facility to locomotive crankshafts until 1975 when the company added a cylinder-lining

division. An addition to the plant was constructed in 1975 to accommodate the plating of cylinder linings [1]. Historical data indicates that hexavalent chromium has migrated off the site in groundwater and has contaminated nearby residential wells [1,2,3].

The site is located in a mountainous region of northeastern Pennsylvania at an elevation of approximately 1,190 feet above mean sea level (amsl). A topographic high of 1,240 feet amsl is located approximately 400 feet south of the facility. Based on topographic data, the direction of surface drainage at the site is to the north-northwest (downhill) at a gradient of approximately 660 feet per mile. The surrounding area is drained by Ackerly Creek, which flows generally from northeast to southwest toward Glenburn Pond.

PADOH has been actively involved at the site since November 1997. On November 3-4, 1997, J.E. Godfrey, staff hydrogeologist along with other PADOH staff met with the Sarah Caspar, EPA On-Scene Coordinator and Joseph Iannuzzo, Project Officer, PADEP and surveyed nearby residential areas and woodlands surrounding the site. On November 20-21, 1997, PADOH staff met with Sarah Caspar, and Jack Kelly, ATSDR Region III, and residents who may have been exposed, in the past, to hexavalent chromium in their private well water and listened to their concerns. A few residents expressed concern regarding migration of contaminants offsite in groundwater and surface water. One family expressed concern that hexavalent chromium may be deposited in their backyard during flooding of the Ackerly Creek. There was also concern that chromium may be deposited in soils at the Ackerly Fairgrounds during flooding.

On February 2-3, 1998, J.E. Godfrey and other PADOH staff met with John Mellow, Hydrogeologist, PADEP, and Joseph Iannuzzo to further survey areas surrounding the site to evaluate the effects of topography and other factors controlling groundwater flow. There is uncertainty regarding whether a small stream near the site acts as a groundwater divide to contain the chromium plume. Therefore, during and after these site visits, the three agencies discussed technical issues dealing with the placement of monitoring wells given the bedrock joint orientations, topography, and stream configurations.

This HC focuses on the issue of current exposure for people potentially using the water from the contaminated aquifer and the placement of wells for plume definition. PADOH will evaluate the results of the groundwater sampling proposed in this document and prepare a HC that addresses the public health significance of its findings. PADOH will address the other concerns (soil/sediment) in subsequent HCs. ATSDR, in collaboration with PADOH, will meet with the residents and address the issue of past exposure to contaminated groundwater. The findings of this investigation, evaluation of available information, our proposed locations for monitoring wells, and residential wells and seeps that need sampling are discussed as follows.

DISCUSSION

Potential Current Exposure

During our investigation of the site, PADOH identified two residential wells (RW-1 and RW-2) and two public wells (PW-1 and PW-2) that may be above the contaminated groundwater plume (Figure 3). RW-1 is located in a vacant lot along Ackerly Road and is not currently used [1,2]. RW-2 is located along Arch Avenue. One person lives in this home and an estimated additional 2 people (family) live or routinely visit this residence. Additional sampling of the residential wells is necessary to confirm previous sampling results. PW-1 is located on the Ackerly Fairgrounds and PW-2 serves a local business. We do not know if the wells are currently contaminated or how many people are potentially affected by the public wells. Therefore, PADOH has recommended that these wells be sampled to determine if they are currently contaminated with hexavalent chromium at levels of health concern.

Plume Definition-Placement of Wells

PADOH, based on site hydrogeologic conditions, has recommended sample well locations that will insure that adequate information is available to evaluate the current and potential future exposures to contaminated groundwater. The details and rationale for the proposed monitoring well locations are discussed in the following paragraphs.

Figures 2 & 3 show the proposed locations of monitoring wells and well nests, the orientations of two prominent high angle (nearly vertical) joint sets, and other topographic and cultural features near the site. Final well locations may be adjusted depending upon local topography and access.

Well nests 2 and 3, the contaminated seep, and deep well 3D are aligned with the strike (south-75 degrees-east) of one joint set extending from the former encapsulated vault (Figure 4). Well nest #4 and deep well 4D are aligned with the same strike direction extending from the old lagoon which appears as a pond on the U.S. G.S. topographic map of the area (Figure 2). Well nests 1 and 5 will enhance plume definition on the southeast side of Ackerly Creek. Deep wells 3D and 4D are positioned to detect possible underflow beneath Ackerly Creek to discharge points further down the main stream valley. The existing new residential well, RW-3, is sufficiently constructed to act as a third deep monitoring well across Ackerly Creek. That well has not yet shown chromium contamination and we do not expect the plume from the site to impact it in the future. The strike directions of high angle joints are expected to be preferential contaminant migration pathways (Figures 2,3). When projected from the former lagoon, those lines pass near the ends of Arch Avenue. These geologic features and their relationship to public health will be elaborated on in a forthcoming HC that will address the public health significance of results of the sampling proposed in this document.

CONCLUSIONS

PADOH presently concludes the site to be an indeterminant health hazard for the one family living near the site that continues to use potentially contaminated groundwater in their private residential well and has recommended that the water in this well be sampled for hexavalent chromium. PADOH will review the sampling results and determine the public health significance of this family's exposure to the groundwater.

The groundwater contaminant plume associated with the Precision National site has not been defined three dimensionally. PADOH concludes that the proposed monitoring well locations and other sampling discussed in this document will provide sampling points to adequately define the extent of the contaminated groundwater plume. Sampling of the two residential wells and the two public wells identified in this HC is necessary to determine if groundwater in these wells is presently contaminated with hexavalent chromium and if adult and children are exposed to contaminants at levels harmful to their health.

As part of ATSDR's Child Health Initiative, ATSDR public health consultations indicate whether any site-related exposures are of particular concern for children. In the event that any of the residential or public wells sampled contain hexavalent chromium at levels harmful to health, PADOH will take necessary action to protect the public health. Special emphasis will be placed on children's health.

RECOMMENDATIONS

1. Sample off-site monitoring wells (including RW-3 which serves as a monitoring well) and residential wells RW-1, RW-2 and public wells PW-1 and PW-2 for hexavalent chromium quarterly for at least two years. After two years of data acquisition, a less frequent sampling cycle may be implemented based on a review of data and recommendations by EPA and PADEP. EPA will assure that the wells are sampled. EPA and PADEP will review the sampling results, determine if further sampling is warranted, and if so, make appropriate recommendations for the frequency of future sampling.

2. Install the monitoring wells identified in Figure 2 and sample them for hexavalent chromium to determine the extent of the contaminated groundwater plume originating at the PNPS. EPA will request PNPS to implement this recommendation.

3. Sample pond seeps and seeps near HDW-1 for hexavalent chromium. EPA will assure that this recommendation is implemented.

4. Analyze all groundwater samples for hexavalent chromium. Laboratory methodology including method detection and reporting limits should conform to EPA guidelines for drinking water analysis. DEP will implement this recommendation.

REFERENCES

1. Engineering Evaluation/Cost Analysis Precision National Plating Services, Inc., Clarks Summit, Pennsylvania. Geraghty & Miller. October 1996.

2. Analytical Database Release 1.0, Precision National Plating Services, Inc., Clarks Summit, Pennsylvania. February 1988.

3. PADEP files, Wilkes-Barre Regional Office.

4. Statement of former PADEP staff, regarding the location of the contaminated groundwater plume near the Precision National Site.

PREPARERS OF REPORT

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Pennsylvania Department of Health

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Hydrogeologist
Pennsylvania Department of Health

CERTIFICATION

The Precision National Plating Services Site Health Consultation has been prepared by the Pennsylvania Department of Health under Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated.

Roberta Erlwein
Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this Health Consultation and concurs with its findings.

for REG

Richard E. Gillig
Chief, SPS, SSAB, DHAC, ATSDR

FIGURES

Figure 1

Precision National Site Location Map

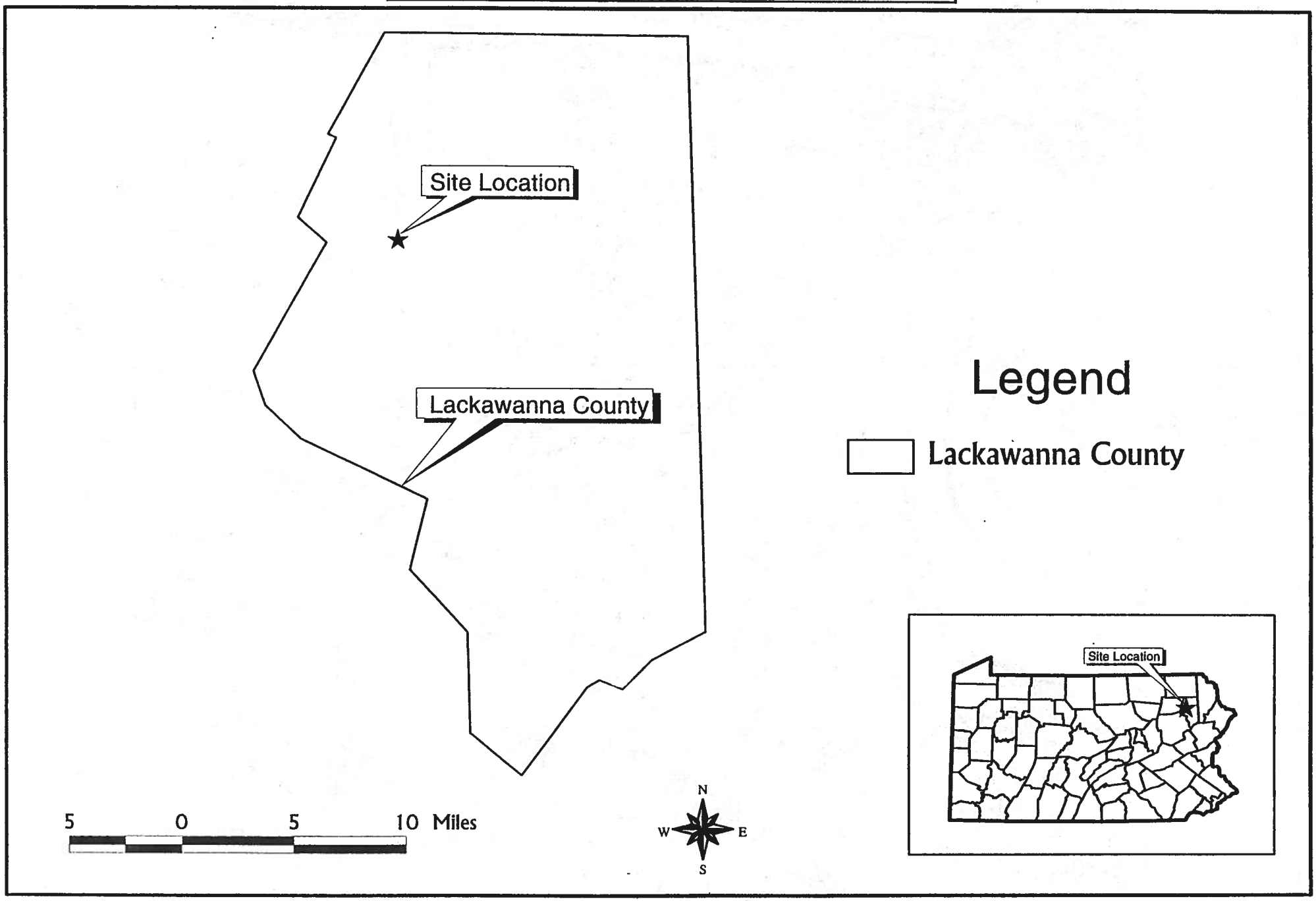
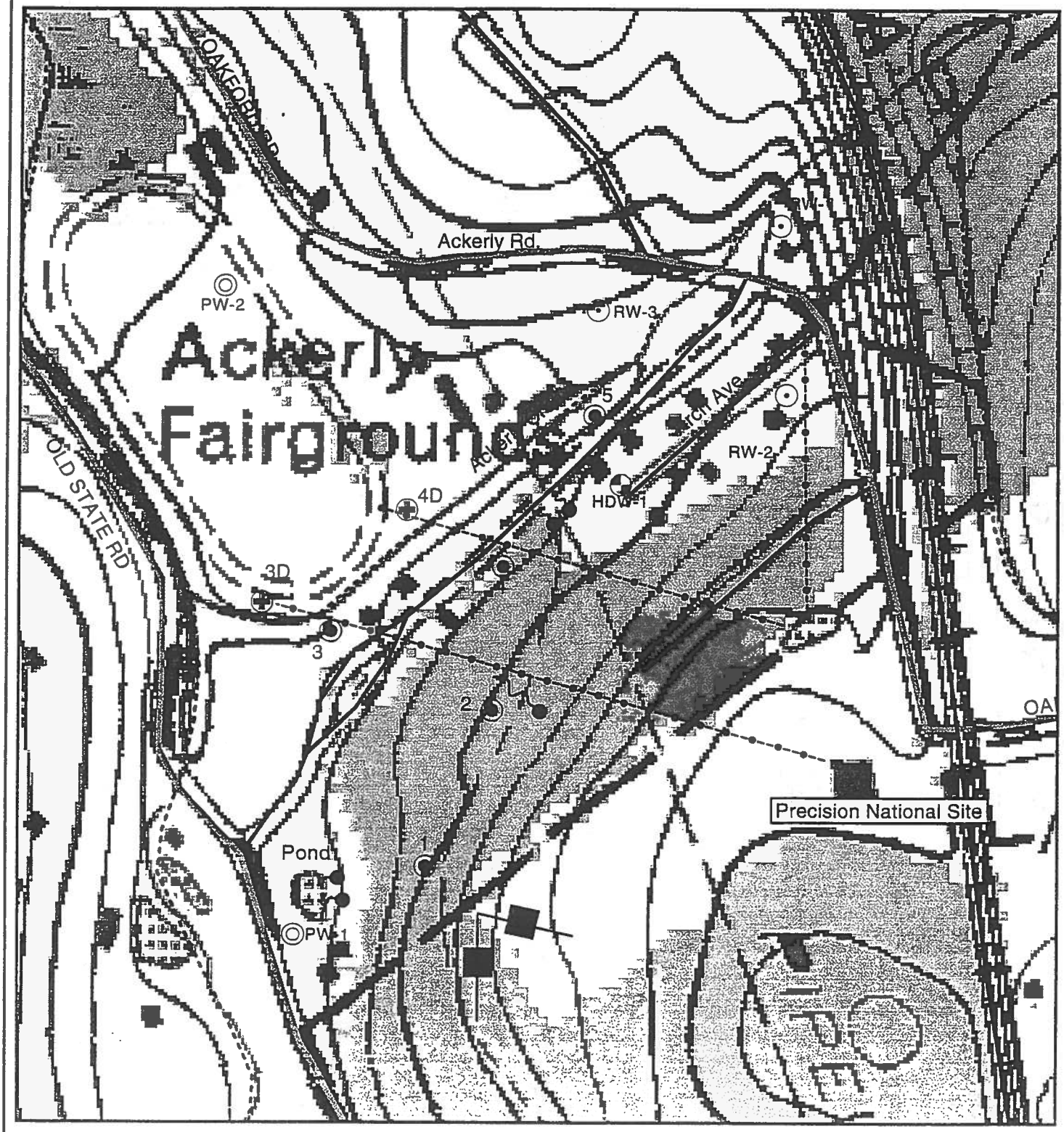


Figure 2

Precision National

Residential, Public, and Proposed
Monitoring Well Locations



Feet
0 100 200 300 400 500 600

Layers

Deep Well	Public Well	Roads	Trend of Vert. Joints
Highways	Railroads	Seep	Well Nest
New Altier Well	Res. Well	Streams	Vertical Joint

N
W E
S

Figure 3

Precision National

Residential, Public, and Proposed
Monitoring Well Locations

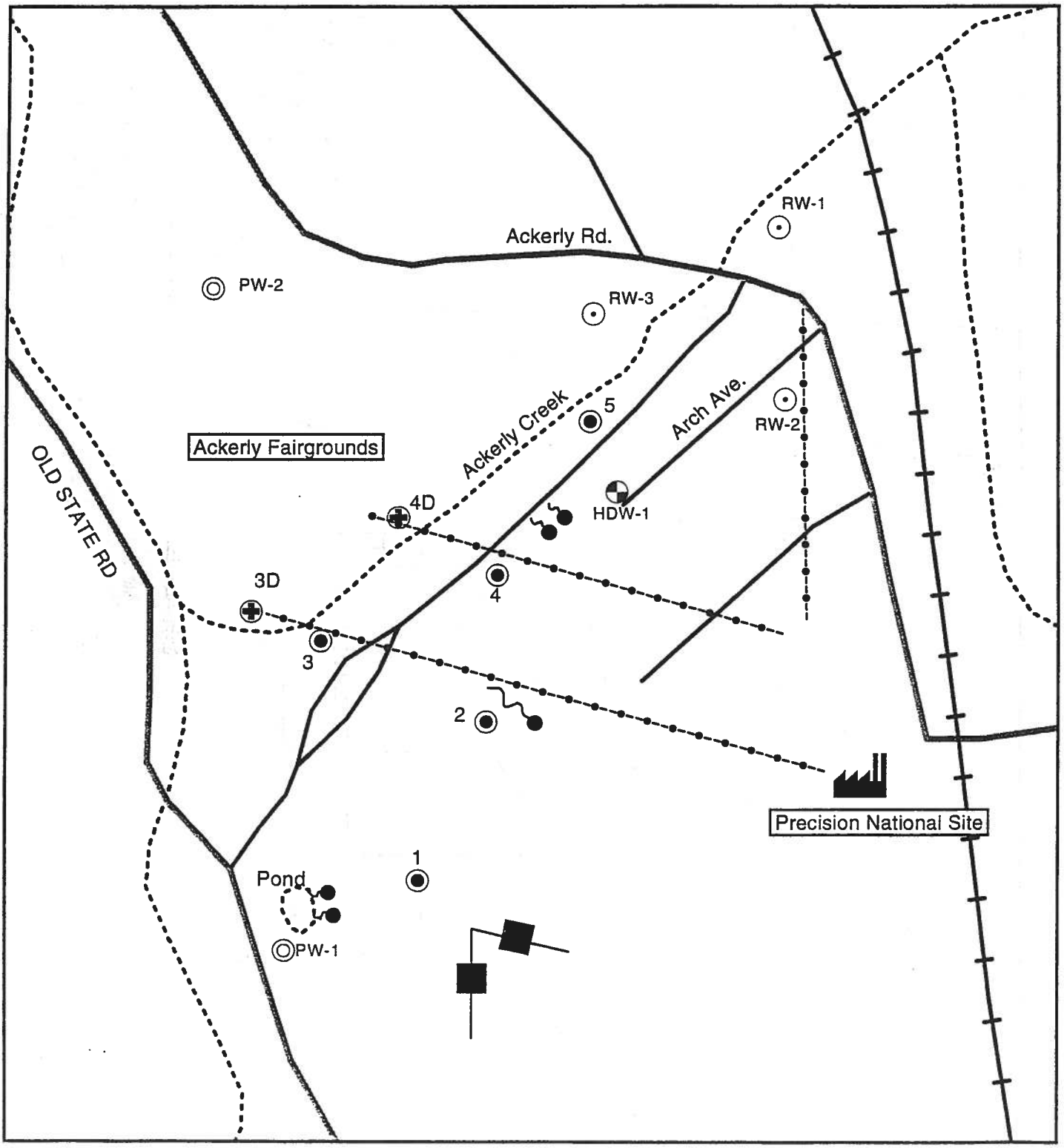
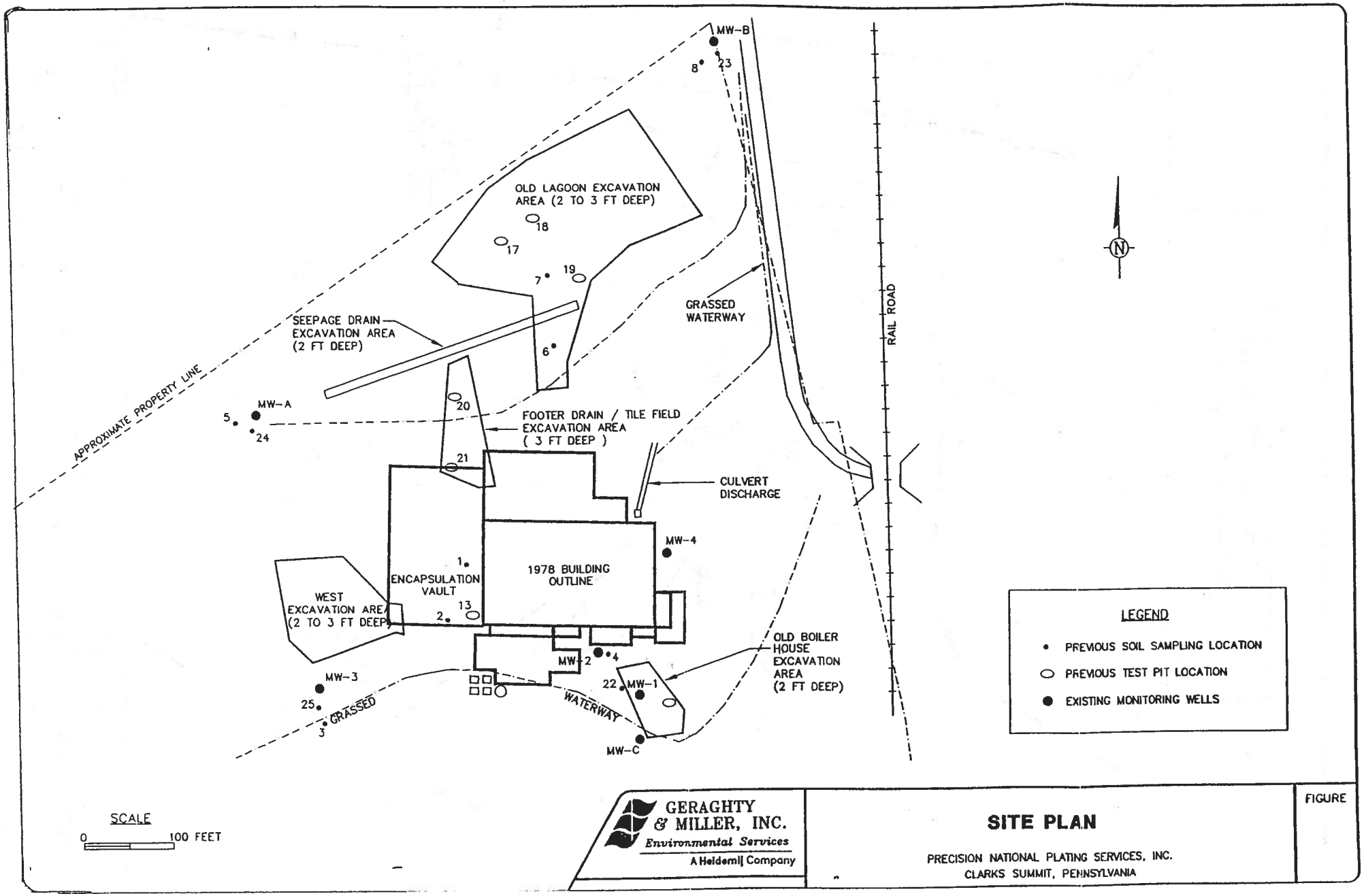


FIGURE 4


MW-B
8
23
OLD LAGOON EXCAVATION AREA (2 TO 3 FT DEEP)
18
17
7
19
SEEPAGE DRAIN EXCAVATION AREA (2 FT DEEP)
GRASSED WATERWAY
RAIL ROAD
6
APPROXIMATE PROPERTY LINE
MW-A
5
24
20
FOOTER DRAIN / TILE FIELD EXCAVATION AREA (3 FT DEEP)
21
CULVERT DISCHARGE
MW-4
1
ENCAPSULATION VAULT
1978 BUILDING OUTLINE
WEST EXCAVATION AREA (2 TO 3 FT DEEP)
13
2
OLD BOILER HOUSE EXCAVATION AREA (2 FT DEEP)
MW-2
4
MW-3
22
MW-1
25
GRASSED WATERWAY
3
MW-C
N
LEGEND
PREVIOUS SOIL SAMPLING LOCATION
PREVIOUS TEST PIT LOCATION
EXISTING MONITORING WELLS
SCALE
0
100 FEET
GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company
SITE PLAN
PRECISION NATIONAL PLATING SERVICES, INC.
CLARKS SUMMIT, PENNSYLVANIA
FIGURE

TABLES

EXPOSURE AND DEMOGRAPHIC STRUCTURE FILE
Past Completed Exposure Pathway Table - OFF SITE

Pathway Name:	Source	Medium	Exposure Point	Exposure Route	Receptor Population	Estimated Time of Exposure	Exposure Activities	Estimated Number Exposed	Chemicals (identify by name or reference to tables in document)
Past Completed Pathway Off-site	Precision National	groundwater	domestic wells	ingestion	residents who used domestic wells	20 years	drinking, cooking	50	hexavalent chromium

EXPOSURE AND DEMOGRAPHIC STRUCTURE FILE
Total Population Estimates Table

Pathway Name	Unknown	Estimated Pop. in Pathway	Range Minimum	Range Maximum
Potential Current Completed Pathway Off-site		5	1	8

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Potential Exposure Pathway Table - OFF SITE

Pathway Name:	*Source*	*Medium*	*Exposure Point*	*Exposure Route*	*Receptor Population*	*Time of Exposure*	*Exposure Activities*	*Estimated Number Exposed*	*Chemicals (identify by name or reference to tables in document)*
Current Potential Off-site	*Precision National*	*groundwater*	*domestic wells*	*ingestion*	*residents using domestic wells*	*20 years*	*drinking, cooking*	*5*	*hexavalent chromium*

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Current Potential Off-site	*Precision National*	*groundwater*	*domestic wells*	*ingestion*	*residents using domestic wells*	*20 years*	*drinking, cooking*	*5*	*hexavalent chromium*